

Amendments to the Specification

Please replace the paragraph beginning at line 7 of page 1 as follows:

Several user disposable sleeves are known that have outer surfaces adapted to conform to the inner surface of an ear after a foam outer portion is compressed, inserted into the ear canal, and allowed to expand. These sleeves are adapted for releasable attachment to sound controlling devices or structures and are described, for example, in US Patents Patent Nos. 4,880,076; 5,002,151; 5,920,636; and 6,310,961, the disclosures of which are incorporated herein by reference. These patents show user disposable sleeves that are adapted for releasable attachment to sound controlling devices or structures having truncated conical outer surfaces diverging in cross-sectional size from their distal ends and having abutment surfaces spaced predetermined distances from their distal ends.

Please replace the paragraph beginning at line 5 of page 7 as follows:

Alternatively, the outer member 12 except for its inner surface 16 can be molded, after which the inner surface 16 in the outer member 12 can be formed by a punching operation which forms the inner surface 16 extending through the outer member 12 between its opposite ends 13 and 14, with the inner surface 16 having a cross section of generally uniform shape and size along its axis. Suitable foam for the outer member 12 is a visco-elastic polyurethane commercially available from 3M Company, St. Paul, MN, similar to the foam sold by 3M under the trademark "~~Attenutech~~" ATTENUTECH. Another suitable foam would be the plasticized polyvinyl chloride foam commercially available from Aero, Indianapolis, Indiana.

Please replace the paragraph beginning at line 14 of page 7 as follows:

The sleeve 10 also includes an inner member 20 that has an axis 18, a distal end 22, a proximal end 23, an outer surface 24 that corresponds in shape to the inner surface 16 of the outer member 12, and an inner surface 28 defining a through passageway. In some embodiments, the inner member 20 can be adhesively secured to the outer member 12 using any suitable adhesive represented as adhesive layer 26. An exemplary adhesive includes "~~Chemlock~~" CHEMLOCK 459 bonding adhesive available from Lord Corporation, Erie, PA.

Please replace the paragraph beginning at line 20 of page 7 as follows:

In some embodiments, the inner member 20 and the outer member 12 can be formed separately and then secured together. In other embodiments, the outer member 12 and the inner member 20 can be co-extruded. In particular embodiments, as illustrated, the inner member 20 can be an extruded tube ~~[[20]]~~ formed of a relatively stiff but flexible polymeric material such as polyurethane.

Please replace the paragraph beginning at line 2 of page 8 as follows:

The ~~extruded tube~~ inner member 20 can be configured to provide longitudinal support to the foam outer member 12 to restrict changing the length of the foam outer member 12 when the sleeve 10 is engaged with the sound controlling structure 34. In some embodiments, the continuous generally annular portion 30 of the ~~extruded tube~~ inner member 20 can firmly and frictionally engage over the outer surface 35 of the sound controlling structure 34 adjacent its distal end 36 when the sleeve 10 is engaged with the sound controlling structure 34. The axially extending portions 32 of the ~~elongate tube~~ inner member 20 can easily flex radially away from the longitudinal axis of ~~[[tube]]~~ inner member 20 to conform to the outer surface 35 of the sound controlling structure 34.

Please replace the paragraph beginning at line 15 of page 8 as follows:

The characteristics of the ~~[[tube]]~~ inner member 20, including the material from which it is made, the durometer of that material, the wall thickness of the ~~[[tube]]~~ inner member 20, and the number of axially extending portions 32 provided on the ~~[[tube]]~~ inner member 20, can be selected to provide a desired combination of those features for a given application. Suitable characteristics for the ~~[[tube]]~~ inner member 20 materials include (but are not limited to) using elastomer (e.g., urethane) materials having Shore A readings in the range of about 40 to about 100 (preferably about 60 to about 80) with a wall thickness of from about 0.03 to about 1.0 mm (e.g., 0.75 mm). The number of axially extending portions 32 used can be in the range of 3 to 12. In some embodiments, the ~~[[tube]]~~ inner member 20 can include about 6 to 8 axially extending portions.

Please replace the paragraph beginning at line 2 of page 9 as follows:

The outer surface 24 and the inner surface 28 of the ~~extruded tube~~ inner member 20 can have cross sections of generally uniform shape and size along their axes, those surfaces 24 and 28 being generally cylindrical as illustrated. In other embodiments, the inner surface 16 of the foam outer member 12, the outer surface 24 and the inner surface 28 of the ~~[[tube]]~~ inner member 20 can have other profiles such as triangular, square, star shaped, or ribbed.

Please replace the paragraph beginning at line 7 of page 9 as follows:

In some embodiments, the ~~extruded tube~~ inner member 20 can have a continuous generally annular portion 30 adjacent its distal end 22, and a plurality of axially extending circumferentially spaced slits 37 between its inner and outer surfaces 28 and 24 and extending from its annular portion 30 to the proximal end 23 of the ~~extruded tube~~ inner member 20. In some embodiments, the ~~extruded tube~~ inner member 20 can include about 8 slits 37. The slits 37 define axially extending portions 32 of the ~~extruded tube~~ inner member 20 that can flex radially outwardly of its axis, thus slightly stretching and/or compressing the foam of the outer member 12 along its inner surface 16.

Please replace the paragraph beginning at line 15 of page 9 as follows:

In some embodiments, the inner surface 16 of the foam outer member 12 can have a cross section of generally uniform shape and size along its axis (generally cylindrical as illustrated) that corresponds in size and shape to the outer surface of the ~~extruded tube~~ inner member 20 both when the foam outer member 12 is adhered to the ~~extruded tube~~ inner member 20 and when the foam outer member 12 is fully expanded and its inner surface 16 is not attached to or compressed by any structure. Thus, adhering inner surface 16 of the foam outer member 12 to the ~~extruded tube~~ inner member 20 will not cause any compressive or tensile stresses in the foam outer member 12 that, during storage of the sleeve 10 before it is used, could, under some conditions, lead to stress cracking or other failure of the foam outer member 12.

Please replace the paragraph beginning at line 9 of page 10 as follows:

The inner surface 28 of the ~~[[tube]]~~ inner member 20 is sized so that when the sound controlling structure 34 is engaged in the through passageway of the ~~[[tube]]~~ inner member 20 with the proximal end 23 of the ~~[[tube]]~~ inner member 20 adjacent the abutment 38, the continuous generally annular portion 30 of the ~~[[tube]]~~ inner member 20 can frictionally engage over the outer surface 35 of the sound controlling structure 34 adjacent its distal end 36, while the axially extending portions 32 of the ~~[[tube]]~~ inner member 20 will flex radially outwardly of the axis of the ~~tubular portion~~ inner member 20 (see Figure 4) to conform to the outer surface 35 of the sound controlling structure 34. Also, the proximal ends of the axially extending portions 32 that are at and generally aligned with the proximal end 23 of the ~~[[tube]]~~ inner member 20 will engage the abutment 38 to help properly position the sleeve 10 along the diverging outer surface 35 of the sound controlling structure 34.

Please replace the paragraph beginning at line 3 of page 11 as follows:

The base portion 42 of the tab 40 can be adapted to be wrapped around and adhered to the sound control structure 34 by that layer 41 of adhesive at a location spaced toward the abutment 38 from the portion of the control structure 34 that will be engaged by the annular portion 30 of the ~~extruded tube~~ inner member 20. The tab 40 can have an elongate portion 43 that has no adhesive coating. The base portion 42 is adhered to the sound control structure 34 so that the elongate portion 43 extends from the base portion 42 axially along the sound control structure 34 and radially outwardly along the abutment 38 so that an enlarged end part 44 of the elongate portion 43 opposite the base portion 42 projects radially outwardly from the abutment 38.

Please replace the paragraph beginning at line 10 of page 12 as follows:

The sleeve 50 also includes an ~~extruded tube~~ inner member 60, such as an extruded tube, of a relatively stiff but flexible polymeric material such as a urethane. The ~~extruded tube~~ inner member 60 has an axis 58, a distal end 62 and a proximal end 63, and an outer surface 64 corresponding in shape to and adhered to the inner surface 56 of the outer member 52 by a layer 66 of suitable adhesive such as previously discussed, and an inner

surface 68 defining a through passageway. The outer and inner surfaces 64 and 68 of the ~~extruded tube~~ inner member 60 can have cross sections of generally uniform shape and size along their axes, those surfaces 64 and 68 being generally cylindrical as illustrated.

Please replace the paragraph beginning at line 18 of page 12 as follows:

The ~~extruded tube~~ inner member 60 has a continuous generally annular portion 70 adjacent its distal end 62, and has a plurality of (i.e., 8 as illustrated) axially extending circumferentially spaced slits 77 between its inner and outer surfaces 68 and 64 and extending from its annular portion 70 to the proximal end 63 of the ~~extruded tube~~ inner member 60. The slits 77 define axially extending portions 72 of the ~~extruded tube~~ inner member 60 that can flex radially outwardly of its axis by slightly stretching and/or compressing the foam of the outer member 52 along its inner surface 56. The ~~[[tube]]~~ inner member 60 has essentially the same structure as the ~~[[tube]]~~ inner member 20 described above, including distal and proximal ends 62 and 63.

Please replace the paragraph beginning at line 3 of page 13 as follows:

The inner surface 56 of the foam outer member 52 has an axis and has a cross section of generally uniform shape and size along its axis (generally cylindrical as illustrated) that corresponds in size and shape to the outer surface of the ~~extruded tube~~ inner member 60 both when the foam outer member 52 is adhered to the ~~extruded tube~~ inner member 60 and when the foam outer member 52 is fully expanded and its inner surface 56 is not attached to or compressed by any structure. Thus, adhering the foam outer member 52 to the ~~extruded tube~~ inner member 60 will not cause any compressive or tension stresses in the foam outer member 52 that, during storage of the sleeve 50 before it is used, could, under some conditions, lead to stress cracking or other failure of the foam outer member 52.

Please replace the paragraph beginning at line 12 of page 13 as follows:

As is seen in Figure 6, the sleeve 50 is adapted for releasable attachment to an elongate sound controlling structure 74 having an outer surface 75 that diverges in cross-sectional size or area from a distal end 76 (i.e., a frusta conical outer surface, as

illustrated). The inner surface 68 of the ~~[[tube]]~~ inner member 60 is sized so that when the sound controlling structure 74 is engaged in the through passageway of the ~~[[tube]]~~ inner member 60 with the distal end 62 of the ~~[[tube]]~~ inner member 60 adjacent the distal end 76 of the sound controlling structure 74, the continuous generally annular portion 70 of the ~~[[tube]]~~ inner member 60 will frictionally engage over the outer surface 75 of the sound controlling structure 74 adjacent its distal end 76, while the axially extending portions 72 of the ~~tube~~ inner member 60 will flex radially outwardly of the axis of the ~~tubular portion~~ inner member 60 to conform to the outer surface 75 of the sound controlling structure 74. One or more of the parts of the axially extending portions 72 that project past the second end 54 of the outer portion 52 can be grasped and pulled on to help remove the sleeve 50 from the sound controlling structure 74.

Please replace the paragraph beginning at line 9 of page 14 as follows:

The sleeve 80 also includes ~~a tube~~ an inner member 90, such as a tubular member, that has been injection molded of a relatively stiff but flexible polymeric material such as SANTOPRENE™, which is commercially available from Advanced Elastomer Systems. The ~~molded tube~~ inner member 90 has an axis 88, a first or distal end 92, a second or proximal end 93 and an outer surface 94 corresponding in shape to and adhered to the inner surface 86 of the outer portion by a layer (not shown) of suitable adhesive (e.g., the “Chemlock” CHEMLOCK 459 urethane bonding adhesive noted above), and an inner surface 98 defining a through passageway. The outer and inner surfaces 94 and 98 of the ~~molded tube~~ inner member 90 have cross sections of generally uniform shape and size along their axes, those surfaces 94 and 98 being generally cylindrical as illustrated.

Please replace the paragraph beginning at line 19 of page 14 as follows:

The ~~molded tube~~ inner member 90 has a continuous generally annular portion 100 adjacent its first end 92, and has a plurality of (i.e., 8 as illustrated) axially extending circumferentially spaced slits 107 between its inner and outer surfaces 98 and 94 and extending from its annular portion 100 to the second end 93 of the ~~molded tube~~ inner member 90. The slits 107 define axially extending portions 102 of the ~~molded tube~~ inner member 90.

member 90 that can flex radially outwardly of its axis by slightly stretching and/or compressing the foam of the outer portion 82 along its inner surface 86.

Please replace the paragraph beginning at line 3 of page 15 as follows:

The inner surface 86 of the foam outer member 82 has an axis and has a cross section of generally uniform shape and size along its axis (generally cylindrical as illustrated) that corresponds in size and shape to the outer surface of the ~~molded tube~~ inner member 90 both when the foam outer member 82 is adhered to the ~~molded tube~~ inner member 90 and when the foam outer member 82 is fully expanded and its inner surface 86 is not attached to or compressed by any structure. Thus, adhering the foam outer member 82 to the ~~molded tube~~ inner member 90 will not cause any compressive or tensile stresses in the foam outer member 82 that, during storage of the sleeve 80 before it is used, could, under some conditions, lead to stress cracking or other failure of the foam outer member 82.

Please replace the paragraph beginning at line 16 of page 15 as follows:

Optionally, as illustrated, a projection 104 can be provided at the end of at least one of the axially extending portions 102 to facilitate separating the sleeve 80 from an elongate sound controlling structure with which it is engaged. Removing the sleeve 80 from the sound control structure can be facilitated by grasping the projection 104 and pulling it toward the distal end of the sound control structure and distal end 92 of the ~~molded tube~~ inner member 90 to pull the sleeve 80 away from the outer surface of the sound control structure. If required for such removal, the axially extending portion 102 from which the projection 104 projects can be pulled to tear through the foam outer member 82, and the annular portion 100 of the ~~[[tube]]~~ inner member 90 can optionally be molded with score lines 106 (i.e., axially extending notches in the annular portion 100 that do not extend to its inner surface 98) aligned with the slits that form that axially extending portion 102 so that the annular portion 100 also can be ruptured by pulling on the projection 104.

Please replace the paragraph beginning at line 5 of page 16 as follows:

In the embodiments shown thus far, the ~~extruded tube~~ inner member 20 of Figures 1-4, the ~~extruded tube~~ inner member 60 of Figure 6, and the ~~extruded tube~~ inner member 90 of Figure 7 have each included a plurality of slits 37, 77, 107 that have been cut into the ~~[[tube]]~~ inner member 20, 60 and 90. However, the invention encompasses additional embodiments. Figures 8 through 14 illustrate additional inner members that can be used with a sound controlling device in accordance with the invention.

Please replace the paragraph beginning at line 20 of page 19 as follows:

Figure 15 depicts another alternative inner member 181 having a generally annular distal region 183 and a proximal region 185 incorporating means for allowing radial expansion of that portion in response to engagement with the sound control device. The expandable portion includes multiple axially extending fingers 187 formed by cutting generally V-shaped longitudinal axial slits over a portion of the length of the inner member 181. The changing radial width of the fingers 187 provides for variation in flexibility from the proximal to the annular distal region.

Please replace the paragraph beginning at line 4 of page 20 as follows:

The inner members 120, 132, 146, 170, 181 and 182 illustrated in Figures 8-15 can be used with an outer member 12 such as illustrated in Figures 1-7. The outer member 12 can be adhesively secured to the inner members 120, 132, 146, 170, 181 and 182 or, in some embodiments, the inner member 120, 132, 146, 170, 181 and 182 and the outer member 12 can be co-extruded, as discussed previously.

Please replace the paragraph beginning at line 5 of page 22 as follows:

The foam used in the outer portion was the previously described visco-elastic polyurethane commercially available from 3M Company. The inner surface 16 of the outer member 12 and outer surface 24 of the ~~extruded tube~~ inner member 20 were both cylindrical with diameters of about 0.2 inch (0.51 cm) and were adhered together with a layer 26 of the "~~Chemlock~~" CHEMLOCK 459 bonding adhesive noted above. The ~~extruded tube~~ inner member 20 had a cylindrical inner surface 28 that was about 0.12

inch (0.30 cm) in diameter, was made of urethane with a Shore A durometer of about 80, and had an axial length of about 0.6 inch (1.52 cm) between its ends 22 and 23, with the continuous generally annular portion 30 having an axial length of about 0.15 inch (0.38 cm). The ~~[[tube]]~~ inner member 20 had 8 axially extending portions 32 of about equal size.

Please replace the paragraph beginning at line 15 of page 22 as follows:

It was found that the sleeve 10 could be repeatedly firmly engaged with the probe tip 34 with the first end 22 of the ~~[[tube]]~~ inner member 20 positioned at locations with respect to the distal end 36 of the probe tip 34 that varied in a range of only about 1 mm. Thus, for example, by appropriately adjusting the dimensions of the ~~[[tube]]~~ inner member 20 the sleeve 10 could be made so that the first end 22 of the ~~[[tube]]~~ inner member 20 could be repeatedly firmly engaged with the probe tip 34 with the first end of the ~~tube~~ inner member 20 spaced in a desired small range of locations with respect to the distal end 36 of the probe tip 34, such as projecting in the range of 2 to 3 millimeters past the distal end 36, spaced 2 to 3 millimeters along the probe tip 34 from the distal end 36, or aligned within 0.5 millimeter with the distal end 36.